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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,159	01/09/2001	Seung-ho Tak	30781-1	2574

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EXAMINER

DAVIS, ZACHARY A

ART UNIT	PAPER NUMBER
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2137

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/700,159	TAK, SEUNG-HO	
	Examiner	Art Unit	
	Zachary A. Davis	2137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A response was received on 26 October 2005. By this response, Claims 4-7, 9, 11-13, and 16 were amended. New Claims 18 and 19 were added. No claims were canceled. This response was held to be non-responsive and a Notice of Non-Responsive Amendment was mailed on 09 January 2006.

2. A further response was received on 03 February 2006. By this response, Claims 4, 7, 11, and 12 have been further amended. No other claims have been added or canceled. Claims 1-3 were previously withdrawn from further consideration as drawn to a nonelected invention. Claims 4-19 are currently under consideration in the present application.

Response to Arguments

3. Applicant's arguments filed 26 October 2005 and 03 February 2006 have been fully considered but they are not persuasive.

Claims 4, 7-11, and 13-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Frew et al, US Patent 4803632, in view of Sloan, US Patent 4731575. Claims 5, 6, 12, 16, and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Frew in view of Sloan, and further in view of Reccia et al, US Patent 6039247.

Applicant argues that neither Frew nor Sloan teach that information is gathered from a host via an electric power modem. However, the Examiner believes that the previously cited portions of Frew do, in fact, disclose an electric power modem. Specifically, at column 5, lines 7-12, Frew teaches that the meter and host device can be coupled through the electrical outlet by frequency shift keying over the power lines. The Examiner believes that this is a clear example of modulation (and implicitly demodulation) of information onto electric power lines. Similarly, at column 7, lines 55-60, Frew further teaches coupling "digital signals over the power lines" using a "current carrier transceiver". The Examiner believes that this is another clear example of transmitting and receiving information over the power lines.

Therefore, for the reasons detailed above, the Examiner maintains the rejections as set forth below.

Claim Objections

4. The Examiner notes that in the limitation "a secure storing portion including a secure access module (SAM) having a CPU, an encryption and a store value module (SVM)", it appears that the word "key" has been inadvertently removed from the claim after the word "encryption". It is noted that the word "key" was present in the claims as originally filed and in the response of 26 October 2005, and was only omitted in the response of 03 February 2006.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation "and requiring an authorization process of the SAM in requesting a token from the SVM". It is not clear what the subject of this limitation is. It appears that the limitation is intended to be part of the list of things that are prevented, due to the placement of the word "and"; however, it does not appear that this phrase is in parallel construction with the other items in the list. This renders the claim indefinite, because it is not clear what is performing the requiring of an authorization process. Further, the Examiner notes that it appears that the phrase "is adapted to preventing" is intended to read "is adapted to prevent".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4, 7-11, 13-15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew et al, US Patent 4803632, in view of Sloan, US Patent 4731575.

In reference to Claim 4, Frew discloses an electric power meter including a power consumption operating portion measuring the voltage and current of a power line and calculating used power (column 5, lines 37-53), a power modem for performing communication through the power line (column 5, lines 7-12; column 7, lines 55-60), a storing portion for storing a value (column 1, lines 24-46, noting that cumulative energy use and cost or credit are displayed, and therefore stored), a switch for breaking the supply of power (column 10, lines 20-25, in which the utility may be shut off), and a token exchanger that reduces tokens from the stored value according to the amount of power used (column 4, lines 51-55), in which a new token is requested when a token is exhausted (see column 10, lines 20-25). However, Frew does not explicitly disclose the use of a secure storing portion that uses encryption.

Sloan discloses an electric power meter that includes a secure storing portion (column 3, lines 42-54) using an encryption key and algorithm for storing a value (column 3, lines 26-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power meter of Frew by including a secured storing portion using encryption, in order to provide a simple, inexpensive, and secure utility metering system (see Sloan, column 2, lines 3-12).

In reference to Claim 7, Frew and Sloan further disclose a converter for supplying an operating voltage required by the electric power meter (see Frew, Figure 4, power

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supply), a power consumption sensor for indicating when power is normally or surreptitiously used (see Frew, column 1, line 45), and a buzzer for generating an audible alarm indicating that a user must add a new token when a balance of value is exhausted (Frew, column 10, lines 17-29).

In reference to Claim 8, Frew and Sloan further disclose a shunt resistor for measuring current (Frew, column 2, lines 3-9), a voltage divider for connecting two resistors in series and selecting a voltage range within the range of a meter (see Frew, Figures 4 and 5), a current analog to digital converter, a voltage analog to digital converter (Frew, Figure 5, ADC 164; column 8, lines 14-17; column 5, lines 49-53), and that the phase of the voltage is compared with the phase of the current and a phase angle is calculated (see Frew, column 1, line 37; column 6, lines 20-23). Although Frew and Sloan only disclose 12 bit digital signals (see Frew, column 5, lines 49-53), official notice is taken that it would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the resolution of the analog to digital converters to produce outputs of 16 or 20 bits, in order to increase the accuracy of the measurements and calculations.

In reference to Claim 9, Frew and Sloan further disclose a power consumption table that applies multiple step power use rates according to supply and demand states on the basis of a real time clock (see Frew, column 5, line 65-column 6, line 14; see also Sloan, column 5, line 66-column 6, line 2, and column 9, line 62-column 10, line 9).

In reference to Claim 10, Frew and Sloan further disclose a nonvolatile memory storing an ID number (see Frew, column 1, line 31, where the serial number is displayed

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and therefore stored) and recording an electric power use state during a certain period (see Frew, column 4, lines 42-66) and monitoring surreptitious or abnormal use of power (Frew, column 1, line 45; see also Table 1, describing an anomalous use of power).

In reference to Claim 11, Frew and Sloan further disclose an LCD display for visually displaying a balance, a transfer state, a power consumption status, and accumulated power use states (Frew, Figure 1, displays 22 and 28; Figure 5, LCD 198; column 1, lines 24-46).

In reference to Claim 13, Frew and Sloan further disclose that the meter includes a cover and physical sealing (Sloan, column 3, lines 47-49).

In reference to Claim 14, although neither Sloan nor Frew explicitly discloses an arrester circuit, official notice is taken that it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an arrester circuit or surge protector, in order to reduce the danger of damage from lightning or power surge.

In reference to Claim 15, Frew and Sloan further disclose a current transformer for measuring current (Frew, column 2, lines 3-9) and that the power meter is connected to local and area service and surveillance units (Frew, column 5, lines 13-27).

In reference to Claim 19, Frew and Sloan further disclose preventing fraud (see Sloan, for example, Abstract and column 1, lines 6-11).

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9. Claims 5, 6, 12, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew in view of Sloan as applied to claims 4 and 15 above, and further in view of Reccia et al, US Patent 6039247.

In reference to Claims 5 and 6, Frew and Sloan disclose everything as applied to Claim 4 above. Frew and Sloan further disclose the use of a credit card for payment (Frew, column 3, line 64-column 4, line 6) and that other meters can receive value from the electric power meter (Frew, column 1, lines 41-49; column 13, lines 22-23; Table 1). Additionally, Frew and Sloan further disclose the use of a magnetic card (Sloan, column 2, lines 29-34) and the use of other meters (Sloan, column 13, lines 4-9). However, neither Frew nor Sloan explicitly discloses the use of an IC card.

Reccia discloses a system for storing and transferring value for services including utility meters (column 1, lines 7-24) in which an IC card can be used to transfer the value (column 3, lines 1-6, where a chip card or smart card can be used). Although Reccia does not explicitly recite the use of terminals of the ISO 7816 standard, it is well known that this standard applies to interfaces for smart cards. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the electric power meter of Frew and Sloan by including the use of a smart card reader, in order to allow for the secure transfer of a value to a designated receiver (see Reccia, column 3, line 66-column 4, line 2).

In reference to Claims 12 and 18, Frew, Sloan, and Reccia further disclose means for performing communication with a server or transmitting a message (Frew,

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column 4, line 66-column 5, line 12). Frew, Sloan, and Reccia also disclose a keypad for requesting a value (Reccia, column 3, line 66-column 4, line 6).

In reference to Claim 16, Frew and Sloan disclose everything as applied to Claim 15 above. Frew and Sloan further disclose automatically transferring value when value is requested to be stored (Frew, column 3, line 64-column 4, line 6), monitoring and managing legal use of value (Frew, column 1, line 45; see also Table 1, describing an anomalous use or theft of power), and totaling and analyzing detailed electric power status (see Frew, column 1, lines 24-46; column 5, line 65-column 6, line 10; column 13, lines 49-53). Additionally, Frew and Sloan disclose the use of a magnetic card (Sloan, column 2, lines 29-34) and a master key (Sloan, column 2, lines 20-25). However, neither Frew nor Sloan explicitly discloses the use of an IC card.

Reccia discloses a system for storing and transferring value for services including utility meters (column 1, lines 7-24) in which an IC card can be used to transfer the value (column 3, lines 1-6, where a chip card or smart card can be used). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the electric power meter of Frew and Sloan by including the use of a smart card reader, in order to allow for the secure transfer of a value to a designated receiver (see Reccia, column 3, line 66-column 4, line 2).

In reference to Claim 17, Frew, Sloan, and Reccia further discloses a voltage divider (Frew, column 2, lines 3-9), voltage and current analog to digital converters (Frew, Figure 5, ADC 164; column 8, lines 14-17; column 5, lines 49-53), relay, and

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shunt resistor (Frew, column 2, lines 3-9) for measuring at least two kinds of voltages (Frew, column 11, lines 11-19, where multiple circuit measurements can be made).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. LaPorte, US Patent 4968970, discloses a system for power line communications including a power line modem.
- b. Lee, Jr., US Patent 5448229, discloses a method for communication with a utility meter that includes use of a power line modem.
- c. Ouellette, US Patent 5691715, discloses a method for detecting fraudulent communications over a power line that uses a bidirectional power line modem.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary A. Davis whose telephone number is (571) 272-3870. The examiner can normally be reached on weekdays 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571) 272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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